

## Chapter 296-864 WAC

### Split (Multipiece) Rim and Single-Piece Rim Wheels

#### NEW SECTION

##### **WAC 296-864-100 Scope.**

**Note:** This rule is intended to protect employees from hazards associated with the exploding separation of rim wheel components.

This chapter applies to the protection of employees who service split rim wheels and single-piece rim wheels used on large vehicles. For example:

✍ Trucks;

✍ Tractor;

✍ Trailers;

✍ Buses;

AND

✍ Off-road machines.

**Exemption:** This chapter does not apply to the servicing of rim wheels used on:

✍ Automobiles;

OR

✍ Tires designated as light truck (LT).

##### **Definition:**

**Split rim wheel** or **multipiece rim wheel**, means a wheel made up of two or more parts. One of the parts is a side ring or locking ring that holds the tire on the wheel when the tire is inflated.

**Single-piece rim wheel** means a single part holds the tire, forms part of the air chamber and is the point where the wheel is attached to the vehicle axle.

#### NEW SECTION

##### **WAC 296-864-200 Wheel components.**

###### **Summary:**

###### **Your responsibility:**

To make sure rim wheels are serviced safely.

###### **You must:**

Make sure wheel components are compatible

WAC 296-864-20005.

Make sure rim wheels are serviced safely

WAC 296-864-20010.

Make sure damaged wheel components are not used

NEW SECTION

**WAC 296-864-20005 Make sure wheel components are compatible.**

**You must:**

✎ Make sure tires and rim wheels are compatible before assembly.

✎ Make sure split rim wheel components are not interchanged, except as provided in:

- The Occupational Safety and Health Administration (OSHA) and National Highway Traffic Safety Administration (NHTSA) charts, "*Demounting and Mounting Procedures for Truck/Bus Tires*" and "*Multi-Piece Rim Matching Chart*,"

OR

- The rim manual for that component.

**Note:** Reprints of these charts, "*Demounting and Mounting Procedures for Truck/Bus Tires*" and "*Multi-Piece Rim Matching Chart*," are available:

✎ Through the WISHA Training and Outreach office at 360-902-5638.

✎ Through the OSHA area offices. The address and telephone number of the nearest OSHA area office can be obtained by looking in the local telephone directory under U.S. Government, U.S. Department of Labor, Occupational Safety and Health Administration.

✎ From the OSHA website at <http://www.osha.gov/pls/publications/pubindex.continue>.

✎ Through U.S. Postal Service at:

Publications Office

U.S. Department of Labor

Room N3101

Washington D.C. 20210.

Telephone: 202-523-9667.

NEW SECTION

**WAC 296-864-20010 Make sure rim wheels are serviced safely. You must:**

✎ Inspect split rim wheel components and single-piece wheels prior to assembly.

✎ Make sure the following are free of any dirt, surface rust, scale or loose or flaked rubber build-up prior to mounting and inflation:

- Rim flanges;
- Rim gutters;
- Rings;
- Bead seating surfaces;

AND

- The bead areas of tires.
  - ✎ Make sure you do not heat any rim wheels at any time.
  - ✎ Provide and make sure that an air line assembly consisting of the following components is used for inflating tires:
    - A clip-on chuck;
    - An in-line valve with a pressure gauge or a presettable regulator;
- AND**
- A sufficient length of hose between the clip-on chuck and the in-line valve, if one is used, to allow the employee to stand outside the trajectory.
- Reference:** For additional requirements relating to compressed air tools, see WAC 296-807-140, Compressed air tools, in portable power tools.

#### NEW SECTION

**WAC 296-864-20015 Make sure damaged wheel components are not used.**

**You must:**

- ✎ Make sure any wheel or wheel component that is bent out of shape, pitted from corrosion, broken or cracked is:
    - Not used;
    - Marked or tagged unserviceable;
- AND**
- Removed from the service area.
  - ✎ Replace damaged or leaky valves.

#### **SPLIT (MULTIPIECE) RIM AND SINGLE-PIECE RIM WHEELS**

#### NEW SECTION

**WAC 296-864-300 Restraint devices.**

**Your responsibility:**

To make sure your restraint devices are safe.

**You must:**


Use a restraining device  
WAC 296-864-30005.


Make sure the restraint device meets these requirements  
WAC 296-864-30010.  
Provide charts or rim manuals  
WAC 296-864-30015.

#### NEW SECTION

##### **WAC 296-864-30005 Use a restraining device.**

###### **You must:**

 Use a restraining device for inflating tires on split rim wheels.


 Use a restraining device or barrier for inflating tires on single-piece wheels.


**Exemption:** A restraining device or barrier is not required for single-piece rim wheels, if the rim wheel will be bolted onto a vehicle during inflation.


#### NEW SECTION

##### **WAC 296-864-30010 Make sure the restraint device meets these requirements.**

###### **You must:**

 Make sure the restraining device or barrier can withstand a rim wheel separation that occurs at one hundred fifty percent of the maximum tire pressure specified.


 Make sure the restraining devices and barriers will contain any components that may be thrown out during a wheel separation of any rim wheel.

 Make sure restraining devices and barriers are visually inspected:

- Prior to each day's use;

###### **AND**


- After any separation of the rim wheel components or sudden release of air.


 Make sure any restraining device or barrier that shows damage is immediately removed from service. Examples of damage include:

- Cracks at welds;
- Cracked or broken components;
- Bent or sprung components caused by mishandling, abuse, tire explosion or rim wheel separation;
- Pitting of components due to corrosion;

OR

- Other structural damage that would decrease its effectiveness.

-  Make sure restraining devices or barriers removed from service are not used until they are repaired and reinspected.

-  Make sure restraining devices or barriers that need structural repair are not used until they are certified by either:

- The manufacturer;

OR


- A registered professional engineer.


**Note:** The certification needs to show that the barrier can withstand a force of one hundred fifty percent of the maximum tire pressure in the event of wheel separation.

#### NEW SECTION

**WAC 296-864-30015 Provide charts or rim manuals.**

**You must:**

-  Provide current charts or rim manuals containing instructions for the types of wheels being serviced in the service area.

-  Provide and use only tools recommended in the rim manual for the specific type of rim wheel being serviced.

#### NEW SECTION

**WAC 296-864-400 Service split rim wheels safely.**

**Your responsibility:**

To establish and use procedures to service split rim wheels safely.

**You must:**

Establish a safe operating procedure for split rim wheels

WAC 296-864-40005.

Follow these procedures for demounting split rim wheels

WAC 296-864-40010.

Follow these procedures when working on split rim wheels and components

WAC 296-864-40015.


Follow these procedures for inflating split rim wheels

WAC 296-864-40020.

## NEW SECTION

**WAC 296-864-40005 Establish a safe operating procedure for split rim wheels.**

**You must:**


 Establish a safe operating procedure for servicing split rim wheels that includes the procedures in WAC 296-864-40010 through 296-864-40020.

 Instruct employees in that procedure.

## NEW SECTION

**WAC 296-864-40010 Follow these procedures for demounting split rim wheels.**

**You must:**

 Follow the relevant procedures in Table 1, Procedures for Deflating Split Rim Wheels.


**Table 1**  
**Procedures for Demounting Split Rim Wheels**

<b>During these times</b>	<b>Then</b>
Demounting rim wheels.	Make sure tires are completely deflated before demounting by removal of the valve core.
During either of the following situations:  – The tire has been driven underinflated at eighty percent or less of its recommended pressure; <b>OR</b>  – There is obvious or suspected damage to the tire or wheel components.	Deflate the tires completely by removing the valve core, before a rim wheel is removed from the axle.

NEW SECTION

**WAC 296-864-40015 Follow these procedures when working on split rim wheels and components.**

**You must:**

 Follow the relevant procedures in Table 2, Procedures for Working on Split Rim Wheels and Components.


**Table 2  
Procedures for Working on Split Rim Wheels and  
Components**

<b>During these times</b>	<b>Then</b>
A split rim wheel is in a restraining device.	Make sure employees do not rest or lean any part of the body or equipment on or against the restraining device.
Assembly of the wheel and inflation of the tire.	Apply rubber lubricant to bead and rim mating surfaces, unless the tire or wheel manufacturer recommends against it.
After tire inflation.	Inspect the tire and wheel components while still within the restraining device; <b>AND</b> Make sure that they are properly seated and locked.
When adjusting the tire or wheel components.	Deflate the tire by removal of the valve core before the adjustment is made.

NEW SECTION

**WAC 296-864-40020 Follow these procedures for inflating split rim wheels.**

**You must:**

 Follow the relevant procedures in Table 3, Procedures for Inflating Split Rim Wheels.

**Table 3**

### Procedures for Inflating Split Rim Wheels

During these times	Then
Split rim wheels are being inflated.	Make sure employees stay out of the trajectory.
A tire on a vehicle has more than eighty percent of the recommended pressure; <b>AND</b> Remote control inflation equipment is used; <b>AND</b> No employees are in the trajectory during inflation.	The tire may be inflated while the rim wheel is on the vehicle.
Assembly of the wheel and inflation of the tire.	Apply rubber lubricant to bead and rim mating surfaces, unless the tire or wheel manufacturer recommends against it.
Inflating tires outside of a restraining device.	Make sure this is done only to a pressure sufficient to force the tire bead onto the rim ledge and create an airtight seal with the tire and bead.
The tire is pressurized.	Make sure you don't correct the seating of side and lock rings by hammering, striking or forcing the components.

**Note:**     ✎ Employees should stay out of the trajectory as much as possible while installing the split rim wheel onto the vehicle.  
             ✎ The trajectory may deviate from its expected path.

### NEW SECTION

#### **WAC 296-864-500 Service single-piece rim wheels safely. Your responsibility:**

To establish and use procedures to service single-piece rim wheels safely.

#### **You must:**

Establish a safe operating procedure for single-piece rim wheels

WAC 296-864-50005.

Follow these procedures for demounting single-piece rim wheels

WAC 296-864-50010.

Follow these procedures when working on single-piece rim



wheel components

WAC 296-864-50015.


Follow these procedures for inflating single-piece rim wheels


WAC 296-864-50020.

#### NEW SECTION

**WAC 296-864-50005 Establish a safe operating procedure for single-piece rim wheels.**

**You must:**


 Establish a safe operating procedure for servicing single-piece rim wheels that includes the procedures in WAC 296-864-50010 through 296-864-50020.

 Instruct employees in that procedure.

#### NEW SECTION

**WAC 296-864-50010 Follow these procedures for demounting single-piece rim wheels.**

**You must:**

 Follow the relevant procedures in Table 4, Procedures for Demounting Single-Piece Wheel Components.


**Table 4**  
**Procedures for Demounting Single-Piece Rim Wheels**

<b>During these times</b>	<b>Then</b>
At all times.	Make sure mounting and demounting of the tire is done only from the narrow ledge side of the wheel.
When demounting rim wheels.	Make sure tires are completely deflated before demounting by removal of the valve core.

NEW SECTION

**WAC 296-864-50015 Follow these procedures when working on single-piece rim wheels and components.**

**You must:**

 Follow the relevant procedures in Table 5, Procedures for Working on Single-Piece Wheel Components.

**Table 5  
Procedures for Working on Single-Piece Rim Wheel  
Components**

<b>During these times</b>	<b>Then</b>
At all times.	Avoid damaging the tire beads while mounting tires on wheels.
At all times.	Make sure tires are mounted only on compatible wheels of matching bead diameter and width.
Before assembly of the rim wheel.	Apply rubber lubricant to bead and wheel mating surfaces, unless the tire or wheel manufacturer recommends against the use of any rubber lubricant.
When using a tire changing machine.	Make sure the tire is inflated only to the minimum pressure necessary to force the tire bead onto the rim ledge while on the tire changing machine.
When using a bead expander.	Make sure it is removed:  – Before the valve core is installed; <b>AND</b>  – As soon as the rim wheel becomes airtight (the tire bead slips onto the bead seat).

#### NEW SECTION

**WAC 296-864-50020 Follow these procedures for inflating single-piece rim wheels.**

**You must:**

✎ Inflate tires only when contained within a restraining device or bolted on the vehicle with the lug nuts fully tightened.

✎ Make sure tires are not inflated when any flat, solid surface is in the trajectory and within one foot of the sidewall.

✎ Make sure employees stay out of the trajectory when inflating a tire.

✎ Make sure, when inflating tires, that the inflation pressure stamped in the sidewall isn't exceeded unless the manufacturer recommends a higher pressure.

✎ Make sure tires aren't inflated above the maximum pressure recommended by the manufacturer to seat the tire bead firmly against the rim flange.

#### NEW SECTION

**WAC 296-864-600 Employee training.**

**Your responsibility:**

To train employees to service split rim and single-piece rim wheels.

**You must:**

Train employees who service rim wheels

WAC 296-864-60005.

Make sure employees demonstrate and retain the ability to service rim wheels safely

WAC 296-864-60010.

#### NEW SECTION

**WAC 296-864-60005 Train employees who service rim wheels.**

**You must:**

- ✎ Train all employees who service rim wheels.
- ✎ Make sure that employees do not service any rim wheel until they have been trained and instructed in:
  - Correct procedures of servicing the type of wheel being worked on;
- AND
- The safe operating procedures described in:
  - ✂ WAC 296-864-400, Service split rim wheels safely;
- AND
- ✂ WAC 296-864-500, Service single-piece rim wheels safely.
- ✎ Make sure the training program explains the hazards involved in servicing those rim wheels and the safety procedures to be followed.
- ✎ Make sure the training program includes, at a minimum, the applicable data from both:
  - The charts (rim manuals);
- AND
- The contents of this standard.

#### NEW SECTION

**WAC 296-864-60010 Make sure employees demonstrate and retain the ability to service rim wheels safely.**

**You must:**


- ✎ Make sure that each employee demonstrates the ability to service rim wheels safely, including performing the following tasks for the specified type of rim wheel in Table 6.


**Table 6  
Required Training Tasks**


<b>Required Task</b>	<b>Split Rim</b>	<b>Single-Piece Rim</b>
Demounting and deflation of tires.	X	X
Inspection and identification of the rim wheel components.	X	X
Hazards of mixing 16" and 16.5" tires and rims.		X
Mounting of tires.	X	X
Inflation of tires with a restraining device or other safeguard required by this section.	X	X
Use of the restraining device or barrier, and other equipment required by this section.	X	X

Handling of rim wheels.	X	X
Inflation of the tire when a rim wheel is mounted on a vehicle.		X
The hazards associated with standing in front of a split rim or single-piece rim wheel: – During inflation of the tire;  – During inspection of the rim wheel following inflation; <b>AND</b>  – Installation and removal of rim wheels.	X	X

**You must:**

 Make sure any employee that is unable to read the charts or rim manual is effectively trained on their contents.

 Evaluate each employee's ability to perform these tasks and to service rim wheels safely.

 Provide additional training as necessary to make sure that each employee maintains his or her proficiency.

**Helpful tool:**

**Training checklist**


The optional training checklist can help you monitor the training status of your employees. You can find this checklist in the resources section of this chapter.


NEW SECTION

**WAC 296-864-700 Definitions.**


**Barrier** means a fence, wall or other object placed between a single-piece rim wheel and an employee during tire inflation that will contain the components if the air in the tire is suddenly released.

**Charts** means:

 The United States Department of Labor, Occupational Safety and Health Administration publications entitled "*Demounting and Mounting Procedures for Truck/Bus Tires*" and "*Multi-Piece Rim Matching Chart*";

 The National Highway Traffic Safety Administration (NHTSA) publications entitled "*Demounting and Mounting Procedures for Truck/Bus Tires*" and "*Multi-Piece Rim Matching Chart*";

**OR**

 Any other poster that contains at least the same instructions, safety precautions and other information contained

in the charts applicable to the types of wheels being serviced.

**Demounting** means deflating and taking apart a tire and rim wheel.

**Installing a rim wheel** means the transfer and attachment of an assembled rim wheel onto a vehicle axle hub.

**Mounting a tire** means the putting together of the wheel and tire components to form a rim wheel, including inflation.

**Restraining device** is a cage or rack that will hold all rim wheel components during an explosive separation of a multipiece rim wheel or during the sudden release of air in a single-piece rim wheel.

**Rim manual** is a publication containing instructions from the manufacturer or other qualified organization for correct mounting, demounting, maintenance, and safety precautions for the type of wheel being serviced.

**Service** or **servicing** means the mounting and demounting of rim wheels, and related activities such as inflating, deflating, installing, removing, and handling.

**Service area** means any place where an employee services rim wheels.

**Single-piece rim wheel** means a single part holds the tire, forms part of the air chamber and is the point where the wheel is attached to the vehicle axle.

**Split rim wheel** or **multipiece rim wheel** means a wheel made up of two or more parts. One of the parts is a side ring or locking ring that holds the tire on the wheel when the tire is inflated.

**Trajectory** means the path that a rim wheel component may travel during an explosive separation or the sudden release of air.

**Wheel** means that portion of a rim wheel that attaches to the axle of a vehicle and also contains the inflated tire or tire and tube.